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| 09/691,751              | 10/18/2000  | J. Doss Halsey       | 11196.4/MKH         | 5737             |
| 23862                   | 7590        | 12/22/2004           | EXAMINER            |                  |
| NYDEGGER & ASSOCIATES   |             |                      | MULL, FRED H        |                  |
| 348 OLIVE STREET        |             |                      | ART UNIT            |                  |
| SAN DIEGO, CA 92103     |             |                      | PAPER NUMBER        |                  |
|                         |             |                      | 3662                |                  |
| DATE MAILED: 12/22/2004 |             |                      |                     |                  |

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/691,751

Applicant(s)


HALSEY ET AL.

Examiner

Fred H. Mull

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13, 15, 17 and 19-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13, 15, 17, 19-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments on p. 12, with regard to various objection(s), have been fully considered and are persuasive. The objections have been withdrawn.

2. Applicant's arguments about the new additions to the claims, in general, are not persuasive.

Applicant fails to add any new structure to system claims 1 and 24, and fails to add any new steps to method claim 19. The claims are essentially unamended. The additions to the claims merely describe the physical situation that exists whether or not it is recognized. Namely, a signal will experience signal path distortion in a structure, as a function of its wavelength and the feature size of the structure, and that the phase of the signal will be dependent on said signal path distortion. Recognizing that there is distortion going on, and its relationship to structure feature size and signal wavelength is, at best, a "discovery", and not an "invention". The examiner would like to suggest adding positive limitations, which are directed to the invention that makes use of this knowledge of the physical situation, such as:

determining a structure feature size;

setting an emitter wavelength to a value longer than said feature size.

The current independent claims encompass any signal that happens to have a wavelength longer than a structure feature size, for any reason whatsoever, or for no

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reason. If applicant believes the prior art does not teach setting an emitter wavelength expressly to be longer than a structure feature size, then that feature should be claimed.

3. Applicant's arguments on p. 14-15, with respect to the rejection(s) over Culpepper have been fully considered but they are not persuasive.

Applicant argues Culpepper does not involve locating an emitter inside a structure. However, most robbers put the currency they steal in some type of structure, such as a bag, rather than walking off with large quantities of cash in their hands. The invention of Culpepper would be of very little use if it only operated when the cash was in plain view.

4. Applicant's arguments on p. 15-16, with respect to the rejection(s) over Mahoney have been fully considered but they are not persuasive.

Applicant argues Mahoney fails to use long wavelength signals to reduce signal path distortion. Firstly, the claims do not recite reduction of signal path distortion, only that signal path distortion exists. Secondly, simply reciting the purpose of the invention is to reduce signal path distortion would be intended use, and therefore not a patentable feature. As discussed in section 2, above, the positive steps that are taken to reduce signal path distortion should be claimed.

5. Applicant's arguments on p. 16-17, with respect to the rejection(s) over Anderson have been fully considered and are persuasive. These rejections have been withdrawn.

***Claim Rejections - 35 USC § 102***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1, 5-6, 15, 19, 21-22, and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Culpepper.

In regard to claims 1, 19, and 24, Culpepper discloses:

a signal emitter coupled to said object (19, Fig. 1; col. 2, lines 56-62), said emitter for broadcasting a signal having a wavelength longer than said feature size (col. 6, line 44, where 347 MHz is equivalent to a wavelength of 0.86 meters or 2.8 feet, and a structure for storing currency, e.g. a briefcase or suitcase or bag or backpack, typically has at least one dimension smaller than 2.8 feet);

at least three mutually dispersed base station sites for receiving said signal from said signal emitter at each base station site (14, 16, 18);

at least one phase sensing circuit for determining phase information for each received signal (136, Fig. 7; col. 1, lines 57-65); and

a central processing site connected in communication with each said base station site (20), said central processing site having a processor for using said phase information to determine the location of said signal emitter relative to each said base station site (col. 3, lines 26-30).

In regard to claim 5, Culpepper further discloses said processor uses said phase information to calculate at least one relative phase delay to determine the location of said signal emitter relative to each said base station site (abstract, final sentence).

In regard to claim 6, Culpepper further discloses said at least one phase sensing circuit is a phase sensing circuit located at said central processing site, and wherein each said base station site has a transmitter for relaying said received signal to said central processing site, and wherein said phase information is a relative phase delay (Fig. 1; col. 2, line 56 to col. 3, line 30; 136, Fig. 7).

In regard to claim 15, 347 MHz is approximately equal to 27 MHz, considering the electromagnetic spectrum from ELF waves to gamma rays covers 24 orders of magnitude.

In regard to claim 21, Culpepper further discloses that the third antenna resolves at least one phase-related ambiguity in said set of possible signal emitter locations (col. 7, lines 56-68).

In regard to claim 22, Culpepper further discloses the said step of eliminating at least one phase-related ambiguity uses a prior information regarding the third antenna, i.e. whether it is in front or in back of the other pair of antennas (which are side by side) relative to the police car.

7. Claims 1, 5, 10-13, 15, 19, 24-27 are rejected under 35 U.S.C. 102(b) as being anticipated by IDS document Maloney.

In regard to claims 1, 19, and 24, Maloney discloses:

a signal emitter coupled to said object (108, Fig. 1), said emitter for broadcasting a signal having a wavelength longer than said feature size (col. 3, lines 41-45, where

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the HF, VHF, and UHF range encompasses 27 MHz, which is the value used by applicant);

at least three mutually dispersed base station sites for receiving said signal from said signal emitter at each base station site (103-104; col. 3, lines 45-46);

at least one phase sensing circuit for determining phase information for each received signal (col. 3, lines 3-22); and

a central processing site connected in communication with each said base station site (105), said central processing site having a processor for using said phase information to determine the location of said signal emitter relative to each said base station site (col. 3, lines 45-59).

In regard to claim 5, Maloney further discloses said processor uses said phase information to calculate at least one relative phase delay to determine the location of said signal emitter relative to each said base station site (col. 6, line 66 to col. 8, line 2).

In regard to claim 10, Maloney further discloses said communication between said base station sites and said central processing site is wireless (103-104, 105, Fig. 1; col. 4, lines 37-42).

In regard to claims 11 and 25, Maloney further discloses said signal emitter is a first signal emitter and said signal is a first signal and further comprising a second signal emitter for emitting a second signal, and wherein said first signal emitter has a signal and said second signal emitter has a means for modulating a second emitter identification code onto said second emitter signal, and wherein each said base station

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site has a filter to separate said first emitter signal from said second emitter signal (col. 4, lines 54-64).

In regard to claims 12 and 27, Maloney further discloses said signal emitter is a first signal emitter and said signal is a first signal and further comprising a second signal emitter for emitting a second signal, and wherein said first emitter signal and said second emitter signal have different frequencies, and wherein each said base station site has a filter to separate said first emitter signal from said second emitter signal (col. 3, lines 59-63).

In regard to claims 13 and 26, Maloney further discloses said signal is a first emitter is a first signal emitter and signal and further comprising a second signal emitter for emitting a second signal, and wherein each said base station sites has a time division multiple access filter to allow a portion of said first emitter signal and a portion of said second emitter signal to be received at each said base station site (col. 3, lines 59-63).

In regard to claim 15, Maloney further discloses said signal has a frequency of approximately 27 MHz (col. 3, lines 41-45, where the HF, VHF, and UHF range encompasses 27 MHz).

***Claim Rejections - 35 USC § 103***

6. Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maloney, as applied to claim 1, and in further view of IDS document Yokey '517.



Maloney further discloses at least one of said phase sensing circuit is located at each said base station site (214, Fig. 2).

Maloney fails to disclose a reference signal for synchronization between the mobile unit and the base stations.

Yakev teaches that a reference signal for synchronization between the mobile unit and the base stations is necessary to ensure that the units are transmitting at the same time that the base stations are listening (col. 5, lines 48-57). This is especially important since Maloney can employ TDMA (col. 3, lines 59-63).

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Culpepper, as applied to claim 1, and in further view of IDS document Yokev '517.

Culpepper further discloses at least one of said phase sensing circuit is located at said central processing site (col. 1, lines 56-65).

Culpepper fails to disclose a reference signal for synchronization between the mobile unit and the base stations.

Yakev teaches that a reference signal for synchronization between the mobile unit and the base stations is necessary to ensure that the units are transmitting at the same time that the base stations are listening (col. 5, lines 48-57). This is especially when TDMA is employed, as discussed with regard to claims 13 and 26, below.

8. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over either of Culpepper and Maloney, as applied to claim 1.

It is well known that a three dimensional arrangement of antennas provides the best resolution for a three dimensional location determination.

9. Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maloney, as applied to claim 1.

It is well known to determine the positions of cellular base stations using GPS.

10. Claims 11-13, 17, and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Culpepper, as applied to claim 1.

It would have been obvious to provide the invention to multiple banks, rather than just one bank, as it is unknown which bank robbers may rob, and authorities will want to apprehend any robber who robs any bank. With multiple emitters, it would be obvious to assign each and identification, using different codes, frequencies, time slots, or polarizations, in order to distinguish them.

11. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maloney, as applied to claim 1.

Using different codes, frequencies, time slots, or polarizations are well known interchangeable methods to distinguish mobile devices.

12. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maloney, as applied to claim 19.

It is well known to space base stations apart for location finding, because locations determined from closely spaced base stations are less accurate than those from base stations with greater spacing.

13. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maloney, as applied to claim 19.

It is well known to space base stations apart for location finding, because locations determined from closely spaced base stations are less accurate than those from base stations with greater spacing.

14. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Culpepper, as applied to claim 21.

The maximum likelihood method is a well known estimation algorithm.

15. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Culpepper, as applied to claim 24.

It would have been obvious to provide a motion sensor to let the police immediately know whether or not the robbers are moving, without have to wait and then do a second position measurement. For example, an accelerometer would indicate the direction and velocity of the robbers are traveling, so police that think they are closing in on stationary robbers don't suddenly find themselves in the path of a speeding escape car.

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Additionally, it would be obvious to provide a battery level sensor to give the police a heads up when the battery will be dying, so they can take precautions rather than having the signal die suddenly.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred H. Mull whose telephone number is 703-305-1250. The examiner can normally be reached on M-F 9:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas H Tarcza can be reached on 703-360-4171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Fred H. Mull  
Examiner  
Art Unit 3662

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